AMENDMENTS TO THE CLAIMS:

This listing of claims will replace all prior versions, and listings, of claims in the application:

LISTING OF CLAIMS:

1-17. (canceled)

18. (currently amended) A device that increases the rate of reproduction [[(]]through increased speed of reproduction and/or increased reproductive yield[[)]] of living cells in suspension or of any culturable organisms through the process of natural selection, said device comprising:

a) a flexible, sterile tube containing culture medium; [[,]]

b) a system of clamps, each capable of open and closed positions, the clamps being positioned so as to be able to divide the tube into ~~separate~~ a downstream region[[s]] containing spent culture ~~(downstream region)~~, a growth chamber containing growing culture ~~(growth chamber)~~, and an upstream region containing fresh growth medium; ~~(upstream region),~~

c) a means of moving the clamps and the tubing; and ~~such that a portion of the growth chamber and the associated culture can be clamped off and separated from the growth chamber, and such that a portion of fresh tubing containing unused medium can be joined with a portion of the culture and associated medium already present in the growth chamber, wherein each of the clamps does not move with respect to the tube when said clamp is in the closed position~~

d) a control system that measures culture density in the growth chamber, and controls the means of moving the clamps and the tubing based on the measured culture density.

19. (canceled).

20. (currently amended) The device according to claim 18, wherein the tubing is gas permeable~~, for example comprised primarily of silicon, to allow gas exchange between the cultured organism and the outside environment, according to the type of experiment~~.

21. (currently amended) The device according to claim 18, wherein the tubing is gas impermeable~~, to prevent gas exchange between the tubing and the outside environment, if the experiment demands anaerobiosis~~.

22. (previously presented) The device according to claim 18, wherein the tubing is transparent or translucent, to allow the measurement of turbidity.

23. (currently amended) The device according to claim 18, wherein the device is constructed and arranged to selectively subject the growth chamber tubing and associated media and culture to a pressure that is either higher or lower than ~~can be depressurized or over pressurized relative to~~ ambient atmosphere ~~as necessitated by experimental requirements~~.

24. (previously presented) The device according to claim 18, wherein the tubing allows the measure of pH of medium by inclusion of a pH indicator in the tubing composition or lining.

25. (currently amended) The device according to claim 18, wherein the device is constructed and arranged to selectively raise or lower a temperature of the growth chamber tubing and associated media and culture ~~can be heated or cooled as appropriate for experiment conditions~~.

26. (currently amended) The device according to claim 18, wherein device is constructed and arranged to agitate the growth chamber tubing and associated media and culture ~~can be kept motionless or agitated by any already known method~~.

27. (currently amended) The device according to claim 26, wherein the tubing ~~can~~ includes at least one ~~or several~~ stirring bars ~~for agitation purpose~~.

28. (currently amended) The device according to claim 18, wherein the device is structured and arranged to subject a confined region[[s]] of the tubing to ~~can be confined in~~ a specific and controlled atmosphere ~~atmospheric area~~ to control gas exchange dynamics.

29. (currently amended) The device according to claim 18, wherein the device is structured and arranged to tilt the growth chamber tubing and associated media and culture ~~can be tilted either downward to remove aggregated cells, or upward to remove air through the functions described in claim 1-c~~.

30. (currently amended) A method that increases the rate of reproduction [[(]]through increased speed of reproduction and/or increased reproductive yield[[)]] of

living cells in suspension or of any culturable organisms through the process of natural selection, comprising:

a) providing a sterile tube containing sterile growth medium and divided by a plurality of gates into a fresh medium chamber and a growth chamber, and inserting an initial culture in the ~~described~~ growth chamber ~~through sterile injection of~~ as a starter culture ~~into a sterile tube containing sterile growth medium~~;

b) maintaining growth conditions according to experimental requisites;

c) after a certain ~~period of time and associated~~ growth of the culture density, adjusting ~~the~~ position of the ~~described~~ gates so as to move ~~equal~~ portions of ~~fresh~~ the sterile growth medium and of grown culture, respectively, ~~(respectively)~~ into and out of the ~~region defined as the~~ growth chamber, allowing a ~~the remaining~~ portion of grown culture remaining in the growth chamber to mix with the introduced portion of ~~fresh~~ the sterile growth medium and continue to grow;

d) reproducing steps b) and c) ~~until the end of experiment~~ to achieve continuous culture and selection of variants with increased reproductive rates; and

e) withdrawing on demand a sample of grown culture ~~from sampling chamber~~.

31. (currently amended) A method according to claim 30 wherein applying a simultaneous peristaltic movement of the gates, the tubing, and the medium and the culture within the tubing, allows provision of a certain quantity of ~~fresh~~ the sterile growth medium to a first end of the growth chamber while an equal quantity of culture is isolated and removed through ~~the other extremity~~ an opposite end of said growth

chamber, terminating a growth cycle and starting a new ~~one~~ growth cycle.

32. (currently amended) A method according to claim 30 wherein steps b) and c are repeated ~~an experiment can include as many growth cycles as required by the experimenter~~ without ~~possible~~ contamination of isolated growing chamber and without ~~possible~~ proliferation of a dilution-resistant population.

33. (currently amended) A method according to claim 30, further comprising ~~such that during the operations the experimenter can~~ maintaining growth conditions, said growth conditions including at least one of ~~according to experimental requisites which may include~~ temperature, pressure, optical density, chemical acidity, agitation and aeration with various gases.

34. (currently amended) A method according to claim 30, ~~wherein a combination of~~ further comprising tilting the device and operating agitators to mix ~~leads to an appropriate agitation for mixing~~ the growing culture ~~in order to prevent or repress aggregation of living organisms~~.

35. (currently amended) A device that increases the rate of reproduction [[(]]through increased speed of reproduction and/or increased reproductive yield[[)]] of living cells in suspension or of any culturable organisms through the process of natural selection, said device comprising:

a continuous length of flexible, sterile tubing;

a system of clamps positioned at points along a section of the tubing, each of the clamps being positioned and

arranged so as to be able to controllably pinch the tubing by putting said clamp into a closed position in which the tubing is divided into separate regions on respective sides of said clamp, the separate regions on respective sides of said clamp being merged back into a single region when said clamp is returned to an open position;

wherein the clamps and tubing are arranged so that the tubing is clamped at first through fourth points along the tubing, defining ~~first through third regions~~ a fresh medium chamber, a growth chamber, and a sampling chamber downstream of the first through third points, respectively; and

wherein a volume of the growth chamber ~~second region~~ delimited by said points two and three is greater than a volume of the ~~first~~ fresh medium chamber and ~~third regions.~~ the sampling chamber;

wherein the system of clamps is constructed so that, in a repeating pattern, the tubing is clamped upstream of the first point, the tubing is clamped at a point between the second and third points, and the second point is returned to the open position, thereby subdividing the growth chamber ~~second region~~ into an upstream portion and a downstream portion, merging the ~~first region~~ fresh medium chamber and the upstream portion, and thereby defining new first through fourth points and ~~first through third regions~~ said fresh medium chamber, said growth chamber, and said sampling chamber.

36. (previously presented) The device according to claim 35, wherein the tubing is gas permeable.

37. (previously presented) The device according to claim 35, wherein the tubing is gas impermeable.

38. (previously presented) The device according to claim 35, wherein the tubing is translucent.

39. (previously presented) The device according to claim 35, wherein the tubing is transparent.

40. (previously presented) The device according to claim 35, wherein contents of the tubing in the second region can be controllably depressurized or over pressurized relative to ambient atmosphere.

41. (previously presented) The device according to claim 35, further comprising a pH indicator in the tubing.

42. (previously presented) The device according to claim 35, further comprising a heating and cooling device that can control a temperature of contents of the tubing.

43. (previously presented) The device according to claim 35, further comprising an agitator.

44. (previously presented) The device according to claim 43, wherein the agitator comprises at least one stirring bar.

45. (previously presented) The device according to claim 35, wherein regions of the tubing can be confined in a specific and controlled atmospheric area to control gas exchange dynamics.

46. (currently amended) The device according to claim 35, further comprising a device to control tilting of the ~~second portion of the tubing~~ growth chamber.

47. (currently amended) A method that increases the rate of reproduction [[(]]through increased speed of reproduction and/or increased reproductive yield[[)]] of living cells in suspension or of any culturable organisms through the process of natural selection, said ~~device~~ method comprising steps of:

providing a continuous length of flexible, sterile tubing;

providing a system of clamps positioned at points along a section of the tubing, each of the clamps being positioned and arranged so as to be able to controllably pinch the tubing by putting said clamp into a closed position in which the tubing is divided into separate regions on respective sides of said clamp, the separate regions on respective sides of said clamp being merged back into a single region when said clamp is returned to an open position;

placing culture medium in the tubing;

closing the clamps at first through fourth points along the tubing to define first through third regions downstream of the first through third points, respectively, wherein the volume of the second region delimited by said points two and three is greater than a volume of the first and third regions;

introducing said culturable organism into the second region between the second and third points, and allowing the culture to grow in the culture medium; and

repeating a step that comprises clamping the tubing upstream of the first point, clamping the tubing at a point between the second and third points, and returning the second point to the open position, thereby subdividing the second region into an upstream portion and a downstream portion, merging the first region and the upstream portion, and thereby

defining new first through fourth points and first through third regions.

48. (previously presented) The method of claim 47, wherein applying a simultaneous peristaltic movement of the clamps, the tubing, and the medium and the culture within the tubing, allows provision of a certain quantity of fresh said medium to the second region of the tubing while an equal quantity of said culture is isolated and removed through an opposite end of said second region, terminating one growth cycle and starting a new growth cycle.

49. (previously presented) The method of claim 47, further comprising a step of controlling a pressure of contents of the tubing in the second region.

50. (previously presented) The method of claim 47, further comprising a step of controlling a temperature of contents of the tubing.

51. (previously presented) The method of claim 47, further comprising a step agitating contents of the tubing.

52. (previously presented) The method of claim 47, further comprising a step of providing a specific and controlled atmospheric area around the tubing to control gas exchange dynamics.

53. (currently amended) The method of claim 47, further comprising a step of controllably tilting of the second portion of the tubing.

54. (currently amended) A device for growing living cells in a continuous manner, comprising:

flexible tubing containing culture medium; and

a system of clamps, each capable of open and closed positions, the clamps being positioned so as to be able to divide the tubing into:

i) an upstream region containing unused culture medium;

ii) a downstream region containing spent culture medium; and

iii) a growth chamber region for growing said cells disposed between the upstream and downstream regions; and

a control system that controls operation of the clamps;

wherein the system of clamps is constructed and arranged, under control of the control system, to open and close so as to clamp off and define the growth chamber region of the tubing between the upstream and downstream regions of the tubing, and to cyclically redefine the growth chamber region of the tubing so that a first portion of the previously defined growth chamber region becomes a portion of the downstream region of the tubing, and a portion of the previously defined upstream region of the tubing becomes a portion of the growth chamber region of the tubing; and

wherein the control system measures culture density in the growth chamber, and controls the system of clamps based on the measured culture density.

55. (previously presented) The device according to claim 54, wherein the system of clamps is structured and arranged so that each of the clamps does not move with respect to the tubing when said clamp is in the closed position.

56. (previously presented) The device according to claim 54, wherein the tubing is gas permeable

57. (previously presented) The device according to claim 54, wherein the tubing is gas impermeable.

58. (previously presented) The device according to claim 54, wherein the tubing is one of transparent and translucent to permit a turbidity meter to determine the density of the culture.

59. (previously presented) The device according to claim 54, wherein the device further comprises a pressure regulator constructed to change a pressure of the growth chamber portion of the tubing relative to ambient pressure.

60. (previously presented) The device according to claim 54, wherein the tubing comprises a pH indicator.

61. (previously presented) The device according to claim 54, further comprising a temperature regulator constructed to control the temperature of the growth chamber region of the tubing.

62. (previously presented) The device according to claim 54, wherein the device further comprises an agitator constructed to allow agitation of the growth chamber portion of the tubing.

63. (previously presented) The device according to claim 62, wherein the agitator comprises at least one stirring bar.

64. (previously presented) The device according to claim 54, wherein said growth chamber region comprises one or more growth chambers containing culture medium.

65. (currently amended) A method for growing cells in continuous manner, comprising:

a) providing flexible tubing and a system of clamps, each of the clamps being capable of open and closed positions, the clamps being positioned so as to be able to divide the tubing into:

i) an upstream region containing unused culture medium;

ii) a downstream region containing spent culture medium; and

iii) a growth chamber region for growing said cells disposed between the upstream and downstream regions; and

iv) a control system that controls operation of the clamps; and

b) under control of the control system, closing selected ones of the clamps on the tubing to define the growth chamber region of the tubing between the upstream and downstream regions of the tubing, and introducing viable cells into the growth chamber region;

c) cyclically closing and opening selected ones of the clamps to redefine the growth chamber region of the tubing so that a first portion of the previously defined growth chamber region becomes a portion of the downstream region of the tubing, and a portion of the previously defined upstream region of the tubing becomes a portion of the growth chamber region of the tubing; and

d) repeating step c) until a sufficient amount of cells has been grown;

wherein the control system measures culture density in the growth chamber, and controls the system of clamps based on the measured culture density.

66. (previously presented) The method according to claim 65, comprising the further step of withdrawing a sample of living cells from said culture medium from said downstream region.

67. (previously presented) The method according to claim 65, further comprising isolating said living cells from said downstream region.

68. (previously presented) The method according to claim 65, wherein the living cells are selected from the group consisting of Yeast, Bacteria, Archae, Eukaryotes, and Viruses.

69. (previously presented) The method according to claim 65, wherein said growth chamber region comprises one or more growth chambers containing culture medium.

70. (previously presented) The method according to claim 65, wherein one or more species of organism are grown in said growth chambers.

71. (previously presented) The method according to claim 65, wherein the sufficient amount of cells of step d) is defined as a pre-determined density level of the cells.

72. (previously presented) The method according to claim 65, wherein the tubing is gas permeable

73. (previously presented) The method according to claim 65, wherein the tubing is gas impermeable.

74. (~~previously presented~~) The method according to claim 71, wherein the tubing is one of transparent and translucent, a turbidimeter being used to determine the density level of the cells.

75. (previously presented) The method according to claim 65, further comprising regulating the pressure of the growth chamber portion of the tubing relative to ambient pressure.

76. (previously presented) The method according to claim 65, further comprising measuring a pH of the culture medium in the growth chamber region.

77. (previously presented) The method according to claim 65, further comprising regulating the temperature of the growth chamber region with a temperature regulator constructed to control the temperature of the growth chamber region of the tubing.

78. (previously presented) The method according to claim 65, further comprising agitating the culture medium in the growth chamber region with an agitator.

79. (previously presented) The method according to claim 78, wherein the agitator comprises at least one stirring bar.

80. (new) The device of claim 18, wherein each of the clamps does not move with respect to the tube when said clamp is in the closed position.

81. (new) The device of claim 80, wherein the means of moving the clamps and the tubing operates in a manner such that a portion of the growth chamber and the associated culture can be clamped off and separated from the growth chamber, and such that a portion of fresh tubing containing unused medium can be joined with a portion of the culture and associated medium already present in the growth chamber.